

REMARKS/ARGUMENTS

Claims 5-16 are pending. Claims 5-9 and 12-14 have been finally rejected over JP 08-067413 (Mitsuyoshi et al.) in view of Park et al. and JP 10-247679A (Okuno et al.). Claims 10, 11, 15 and 16 have been rejected over the foregoing patents, further in view of Miyazaki et al.

Claim 5 is being amended as follows:

A substrate treating apparatus for performing a predetermined treatment of a plurality of substrates as immersed in a heated treating solution, comprising:
a controller for controlling a processing time for immersing said substrates to be treated, said controller comprising:
a substrate count acquiring device for acquiring a count of said substrates to be treated;
a storage device for storing beforehand a relationship between said count of the substrates and a processing time such that a processing time for immersing said substrates in the heated treating solution is progressively extended as said count of said substrates increases, and
wherein a plurality of predetermined ranges of substrate counts are stored, such that a processing time for an entire one of said predetermined ranges of substrate counts ~~of said substrates~~ corresponds to a predetermined immersion time for one of said counts in said predetermined range; and
a processing time determining device for determining said processing time according to the count of said substrates acquired by said substrate count acquiring device, by referring to said relationship stored in said storage device; and further comprising
a treating tank for immersing said substrates in the heated treating solution for the processing time determined by said processing time determining device.

The previous passage in claim 5, “wherein predetermined ranges of substrate counts are stored, such that a processing time for an entire predetermined range of counts of said substrates corresponds to a predetermined immersion time for one of said counts in said predetermined range; and” is considered to be slightly unclear and is being amended to read, in part, “wherein a plurality of predetermined ranges of substrate counts are stored, such that a processing time for an entire one of said predetermined ranges of substrate counts corresponds to a predetermined immersion time for one of said counts in said predetermined range;...” (Emphasis added.)

The present amendment is submitted to clarify the stored relationship between the

number of substrates counted, and the processing time to be used with those substrates, as described in the specification at page 19, lines 1-16, as well as at pages 19-23 generally, and as illustrated in Fig. 5.

In particular, please note page 19, lines 3-11, which states:

“Similarly, the processing time (amount of correction) for six to 10 wafers is the same as for eight wafers,
that for 11 to 15 wafers the same as for 13 wafers,
that for 16 to 20 wafers the same as for 18 wafers,
that for 21 to 25 wafers the same for 23 wafers,
that for 26 to 30 wafers the same for 28 wafers,
that for 31 to 35 wafers the same for 33 wafers,
that for 36 to 40 wafers the same for 38 wafers,
that for 41 to 45 wafers the same for 43 wafers, and
that for 46 to 50 wafers the same for 48 wafers.”

As now claimed, the storage device of claim 5 has a relationship between the count of the substrates and the processing time stored beforehand, such that:

- the processing time for immersing the substrate in the heated treating solution is progressively extended as the substrates increase in number, and
- such that a respective predetermined processing time is assigned to each of a plurality of predetermined ranges of counts of the substrates, based on a predetermined processing time for one count within that range.

None of the references (including particularly Park et al.) discloses or suggests a substrate treating apparatus having a storage device which stores such a relationship, and applies such relationship to control an immersion processing time as set forth in claim 5.

JP Patent No. 08-067413 (Mitsuyoshi et al.), the principal reference, merely describes a substrate count acquiring device and a treating device.

U.S. Patent No. 5,672,230 (Park et al.) merely states, “reference numeral 20 denotes a main computer connected to wet chemical cleaning stations 10 so as to display, store and process the data sensed by the sensors of wet chemical cleaning stations 10 and centrally manage the data.” This reference neither discloses nor suggests the above-mentioned feature of claim 5, whereby substrates are immersed in a heated treating solution for a processing time determined by a processing time determining device according to a count of the substrates.

In the Office Action, page 3, paragraph 9, the Examiner asserts, “Okuno et al. teach providing a controller comprising a storage device ‘having the capability’ of storing predetermined ranges of substrate counts” Okuno et al. may disclose that a treatment changes according to the number of wafers processed. Okuno et al. does not disclose or suggest the features now claimed in claim 5. Okuno et al. does not disclose the claimed concept of a storage device plus a controller whereby the processing time for immersing the substrates in the heated treating solution is progressively extended as the substrates increase in number.

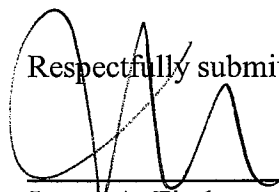
Thus, the storage device recited in claim 5 (lines 7-14) stores beforehand a relationship between said count of the substrates and a processing time “such that a processing time for immersing said substrates in the heated treating solution is progressively extended as said count of said substrates increases, and wherein a plurality of predetermined ranges of substrate counts are stored, such that a processing time for an entire one of said predetermined ranges of substrate counts corresponds to a predetermined immersion time for one of said counts in said predetermined range”. None of the references (particularly Japanese Patent No. 10-247679A (Okuno et al.)) discloses or suggests a storage device storing such a relationship and thereby controlling a processing time determining device as claimed.

For the reasons noted above, none of the references, considered individually or in combination, disclose or suggest the characterizing portion of claim 5 in the subject application. Thus, claim 5 in the subject application is unobvious over the references cited. Dependent claims 6-16 are also unobvious over the references, for at least the same reasons, as well as for patentable subject matter stated therein.

THIS CORRESPONDENCE IS BEING
SUBMITTED ELECTRONICALLY
THROUGH THE PATENT AND
TRADEMARK OFFICE EFS FILING
SYSTEM ON October 29, 2007.

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